



THE ROLE OF ARTIFICIAL INTELLIGENCE FOR ENHANCING CUSTOMER EXPERIENCE – AN EMPIRICAL STUDY IN INDIAN BANKING SECTOR

Dr. K. G. Raja Sabarish Babu¹, Dr. G. Chinna Durai²

¹ M.B.A., Ph.D., SET., Assistant Professor of Business Administration, Sourashtra College, Madurai, Tamilnadu

² M.Com., M.Phil., Ph.D., SET., NET., Assistant Professor of Corporate Secretary Ship, Sourashtra College, Madurai, Tamilnadu

ABSTRACT

Artificial intelligence (AI) quickly changes the Indian banking sector to improve the quality of customer service. This empirical study considers how AI technology can increase customer satisfaction, work efficiency and service provision of Indian banks. He explores the influence of artificial intelligence tools such as artificial intelligence tools. Expect personalized financial services for interaction with predicted dialogue bots and customers and analyze data from large banks that have made decisions based on artificial intelligence. Thanks to the non -common financial company (NBFC), which provides more advanced functions, Indian banks must integrate AI to maintain competitiveness. AI helps to determine consumer preference and can be used to provide individual products for customers.

This study accepts an integrated approach to data collection of bank customers. In order to get an idea for the experience of working with AI at the bank, we conducted a survey to evaluate the use of chat bots on the online banking platform. Quantitative analysis using the index of relative importance identifies the primary use options that consumers rank in ranking. The correlation between Spearman is used to determine the relationship between the two factors most often mentioned.

This study provides practical recommendations to banks that expand their understanding of AI's influence on the change of Indian banking industry and use AI technology to improve the quality of customer services and alleviate possible problems.

KEYWORDS: Artificial Intelligence, Customer Experience, Banking Sector, India, Chatbots, Predictive Analytics, Personalized Services

INTRODUCTION

In the competitive financial sector, customer experience management (CXM) has emerged as a critical differentiator, shaping not only customer satisfaction but loyalty too, profitability, and brand reputation. With rapidly evolving customer expectations and the integration of advanced technologies, financial institutions must adopt various strategies to manage and enhance customer experiences. For banking and financial services companies, implementing the proper Customer Experience (CX) strategy is becoming a crucial differentiator, as research shows that even little changes in CX generate measurable benefits.

Customer Experience Management (CXM) in the financial sector is important for building strong relationships, enhancing customer satisfaction, and driving business growth. CXM involves strategies and practices designed to understand and improve how customers interact with and perceive financial institutions. Artificial Intelligence (AI) has altered various industries, and the financial sector is no exception. In Customer Experience Management, AI plays a pivotal role in enhancing interactions, personalizing services, and streamlining operations. This article explores how AI contributes to CXM in the financial sector, examining its applications, benefits, challenge & future trends.

LITERATURE REVIEW

According to Meyer and Schwager (2007), a customer's internal and subjective reaction to any kind of direct or indirect interaction with a business is their customer experience. Direct communication is typically started by the customer and takes place during the purchase, use, and servicing processes. The most common type of indirect contact is when people unintentionally come into touch with representatives of a company's brands, products, or services. This can happen through word-of-mouth recommendations or complaints, advertising, news articles, reviews, and other media. The definition of artificial intelligence is "the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as speech recognition, visual perception, decision-making, and language translation.", CXPA(2018).

As technology evolves, banks are undergoing pressure on digital innovation. To achieve this, it is very important for a bank to simplify the operation and process of the sponsorship office. Priority of customer demands and improvement in providing services are the main components of this transition. With massive data analysis and integration of artificial intelligence, we were able to create a solution to improve customer service. As a result, the improvement of customers has been improved to promote various functions. Empirical

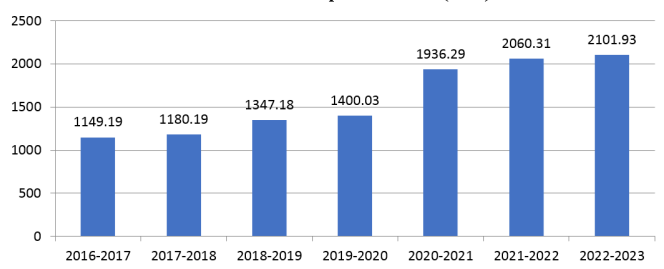
research emphasizes the use of AI and big data analysts in banks worldwide by paying special attention to the Indonesian banking sector (Indriasari, Gaol, & Matsuo, 2019). A further study focused on the application of chatbot technology in the field of education. To improve the customer experience, it is important to determine the elements that influence the front office Chatbot's communication with students. Surveys are used in this quantitative study to get data from Indian higher education institutions. The results and conclusions improve the learning process for the pupils. (Gide and Sandu, 2020)

INDIAN BANKING SECTOR

The Indian banking system has 12 public sector banks, 21 private sector banks, 44 foreign banks, and 12 minor financial organisations. As of April 2024, India had 17,36,972 micro-ATMs in total. In addition to the 1,26,593 on-site ATMs, there are 91,824 off-site ATMs and Cash Recycling Machines (CRMs). During the initial four months of FY23, banks installed around 2,796 ATMs, compared to 1,487 in FY22 and 2,816 in FY21. Opening a new bank account in rural India is a completely digital process.

The Indian banking division has recently adopted innovative bank concepts such as payment and small financial banks. Over the past few years, India has prioritized the expansion of bank access through various initiatives such as Pradhan Mantri Jan Dhan Yojana and Post Payment Bank. This effort has contributed to the major reforms of the banking sector, such as Neo Banking, Digital Payment, India's NBFC's growth, and Fintech's growth. The Indian Fintech Market is expected to be \$ 150 billion by 2025, and has established India as the third largest fintech ecosystem in the world. In the past decade, CAGR (total annual growth rate), one of the world's fastest growing fintech markets in India, has reached 39.5%. The digital consumer loan market in India is expected to exceed \$ 700 billion by 2030, which is expected to exceed \$ 1 trillion in potential digital loan markets.

Figure 1
Growth of Bank deposits in India (US \$)



Source: IBEF (Indian Brand Equity Foundation)

ROLE OF AI IN INDIAN FINANCIAL INDUSTRY

The financial industry in India, characterized by its rapid growth and technological adoption, is increasingly leveraging Artificial Intelligence (AI) to transform its operations and services. AI is reshaping how financial institutions operate, interact with customers, and manage risks. This article explores the various applications, benefits, and challenges of AI in India's financial sector, as well as its future prospects.

Applications of AI in India's Financial Sector

Personalized Financial Services

Application: The AI algorithm processes customer data to provide personalized financial products and services such as individual investment recommendations, individual proposals for loans and specific insurance options

Example: Fintech companies like Paytm Money and Groww use AI to recommend investment options based on user profiles and market conditions.

Fraud Detection and Prevention

Application: The AI system investigates the transaction pattern to determine irregularities to ensure detection of fraud and real-time prevention. It provides chat bots, virtual assistants and account data controlled by the AI controlling customer request and supports the trading process.

Example: Banks such as HDFC and ICICI use AI-driven fraud detection systems to monitor transactions for signs of suspicious activity and prevent fraud.

Customer Service and Chatbots

Application: AI-driven chatbots and virtual assistants manage customer queries, offer account details, and support transaction processes.

Example: SBI's chatbot "SIA" and HDFC's "Eva" offer 24/7 support for customer queries, helping to resolve issues quickly and efficiently.

Credit Scoring and Risk Management

Application: AI assesses a variety of data points, including non-traditional information, and improves loan evaluation models.

Example: Companies like KreditBee use AI to evaluate alternative data sources, such as mobile usage patterns and social media activity, to offer instant personal loans.

Algorithmic Trading and Investment

Application: The AI algorithm performs transactions and control investment portfolios, analyzes market data and uses predictive analysis.

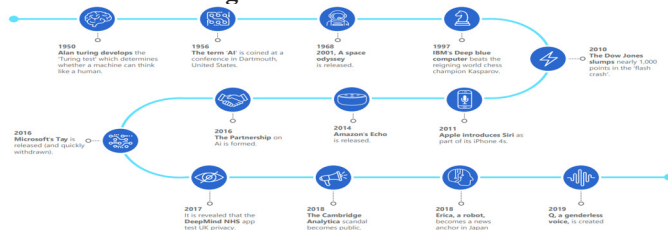
Example: Indian stock brokers and investment firms employ AI-driven trading algorithms to optimize trading strategies and improve returns.

Financial Forecasting and Analytics

Application: The AI model predicts financial results and market fluctuations by studying past data and market trends.

Example: Asset management firms leverage AI for predictive analytics to optimize investment strategies and manage risk.

Diagram 1: Evolution of AI



Source: IRDBT

Types of Artificial Intelligence used by Indian Banks

Features	Indian Banks
Chatbot	State Bank of India(SBI), ICICI Bank, Axis Bank, HDFC Bank, Kotak Mahindra Bank, Bank of Baroda, Andhra Bank, Canara Bank, City Union Bank(CUB), Yes Bank & IndusInd Bank
Loan Processing	State Bank of India(SBI), HDFC Bank, ICICI Bank, Axis Bank, IDFC Bank, South Indian Bank, Bank of Maharashtra, Central Bank, Yes Bank & IndusInd Bank
Biometric authentication and e-KYC	State Bank of India(SBI), ICICI Bank, Axis Bank & Kotak Mahindra Bank
Fraud Detection	Punjab National Bank, IDBI Bank & City Union Bank(CUB)
Bulk Transaction Processes	ICICI Bank, Axis Bank, Allahabad Bank & City Union Bank
Document Scrutinizing and Digitization	ICICI Bank, Axis Bank, Yes Bank & Bank of Baroda
Risk Monitoring	State Bank of India(SBI), Axis Bank, IDBI Bank & HDFC Bank
Sentiment Analysis	State Bank of India(SBI), ICICI Bank & Kotak Mahindra Bank
CRM	HDFC Bank, IDBI Bank & Allahabad Bank
Customer Segmentation	State Bank of India(SBI) & HDFC Bank
Sales and Cross-Selling	State Bank of India(SBI) & HDFC Bank
Credit Assessment	State Bank of India(SBI)
International Remittance	ICICI Bank
Business Report	State Bank of India(SBI)
Wealth Management	State Bank of India(SBI)
Marketing	State Bank of India(SBI)

DRIVERS OF AI IN BANKING INDUSTRY

AI is causing a shift in the calibre of goods and services provided by the Indian banking sector. In addition to simplifying data administration and raising customer happiness, it has streamlined, expedited, and reimagined existing procedures to increase their effectiveness. Data has become the most valuable resource for financial services companies as a result of technological advancements like artificial intelligence. Banks are now more aware than ever of the creative and affordable solutions AI offers, and they realise that asset size, while still significant, is no longer enough to start a profitable company.

Increase in Data

The banking sector has been significantly impacted by the big data market expansion because of the shift in consumer expectations. In addition to the traditional structured data, such as transactional data, banks now collect large volumes of unstructured data, including emails, texts, and voice messages, images, and videos, through customer service, social media platforms, and other data collection methods. Customers now interact with their banks more digitally. Banks are now able to provide more individualised services because to big data. Financial institutions are utilising a comprehensive perspective of the consumer's engagement with the brand, encompassing fundamental personal information, transactional records, and social media exchanges, to enhance their decision-making procedures.

Better Infrastructure

The rapid advancement of cloud computing, along with abundant

computational resources and readily available infrastructure, facilitates the expeditious processing of vast amounts of data at reduced expenses and with optimal scalability. This indicates that businesses are more prepared than ever to use AI.

Managing Regulatory requirements

In order to fulfil their regulatory requirements, banks must submit accurate reports on schedule, and regulators closely monitor their performance. Data from several source systems must be gathered for regulatory compliance activities. AI-driven solutions provide an opportunity to improve the speed and quality of decisions, automate data collecting procedures, and increase the organization's ability to comply with regulatory requirements—all of which can help tackle some of the issues facing today's financial systems. The rise of AI will also necessitate significant alterations to the current configuration of the world's financial markets as well as modifications to long-standing legislation. Technologies to help banks become better prepared for the future.

Competition

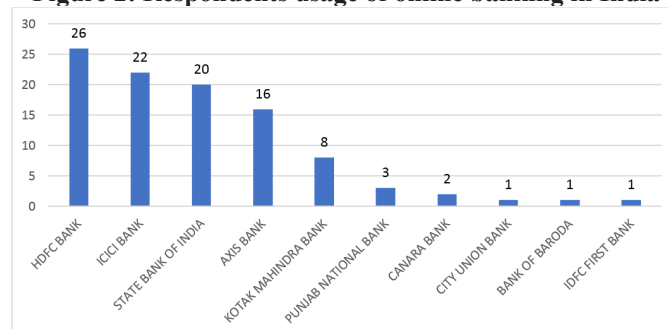
Banks are continuously struggling with Fintech Company and industry colleagues to provide the best service to our customers. This technology has become an important differentiation in this competitive environment. The organization uses advanced tools to control large amounts of data when processing a large amount of data. As a result, banks accept AI to improve existing services, introduce new products, and provide more personalized experiences to customers.

DATA ANALYSIS

Objectives:

- To rank the names of Indian banks which provide digital banking options to customers.
- To determine whether the most common application of chatbot assistance and the chatbot recommendation services offered by Indian banks are significantly related.

Figure 2: Respondents usage of online banking in India



From the above figure, HDFC and ICICI are the banks of which majority of customers use digital banking products. Total respondents were 97.

Factors considered on Chatbot Assistance

The following factors considered on Chatbot Assistance for rank test Customer Service, Loan decision, Bill payment, Reminders about credit card payments and Financial transactions.

Table 3: Ranking the factors influencing chatbot assistance through the use of a relative importance index.

Factors	RII	Rank
Customer Service	0.694	1
Financial transactions	0.634	2
Reminders about credit card payments	0.610	3
Loan Decision	0.594	4
Bill Payment	0.585	5

From the above table, Customers rank customer service as main factor in chatbot assistance while Bill Payment rank fifth.

Factors considered on Chatbot Recommendation

The following factors considered on Chatbot Recommendation for rank test New Account Creation, Budget Allocation, Sale Notifications, Financial Advice, Offers and Discounts.

Table 4: Ranking Chatbot recommendation factors using relative important index

Factors	RII	Rank
Sale Notification	0.765	1
Budget Allocation	0.734	2
Offers & Discounts	0.689	3
Financial Advice	0.612	4
New Account Creation	0.592	5

From the above Table 3, Customers rank Sale Notification as main factor in chatbot recommendation while new account creation rank fifth.

Hypothesis

The results above indicate that customer service is the most highly ranked factor in chatbot assistance, while sale notifications hold the top position in chatbot recommendations.

H0: Null Hypothesis: There is no significant relationship between “Customer Service” and Sale Notification

H01: Alternate Hypothesis: There is significant relationship between “Customer Service” and Sale Notification

Table 5.: Test result of Spearman's rho

			Customer Service	Sale Notification
Spearman's rho	Customer Service	Correlation Coefficient	1.000	.345
		Sig. (2 tailed)		.003
		N	97	97
	Offers and Discounts	Correlation Coefficient	.345	1.000
		Sig. (2 tailed)	.003	
		N	97	97

Correlation is significant at the 0.01 level (2 tailed)

The p value is .003 which is less than .05 significance, this implies that null hypothesis is rejected.

There is a positive correlation of .345 between the two variables. This implies that people are more inclined to utilise chatbots for recommendations about sale notifications if they use them for customer service help.

CONCLUSION

The AI transforms the Indian bank division to improve customer service, improve operational efficiency, strengthen fraud detection, and create more individual financial products and services. The implementation of AI provides significant growth opportunities, but banks need to solve problems such as data personal information, model displacement and system integration. Customers often ask basic questions when looking at the bank website, which can often be more effective. Chatting bots, which automate everyday work and immediately access information and provide personalized support, greatly improve banking customer service quality. They provide a convenient, effective and safe way for customers to manage their finance so that bank staff can focus on more difficult tasks to increase value. The main support area for chatbots is customer service, and the recommendations of chatbots such as sales notifications play an important role. This feature, which meets the specific needs of customers, not only increases customer participation but also increases the bank's brand value.

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